

REMARKS

The Office Action dated April 23, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 2, 4-13, 15-19, 21-27, 33, and 34 are amended to more particularly point to and distinctly claim the subject matter of the present invention. Entry of the amendments is respectfully submitted because they place and application into better condition for allowance or appeal, do not raise new issues that require further search and/or consideration and do not contain new matter. Claims 2-4, 13, 15-19, 21-27, 30, 31, 33 and 34 are respectfully submitted for consideration.

The Office Action rejects claims 2, 4-13, 15-19 and 21-27 under 35 U.S.C. 112, second paragraph because the elements “the first and second transmitter unit” lacks proper antecedent basis. Applicants submit that the appropriate claims are amended to replace “transmitter unit” with “base station” to provide proper antecedent basis for the elements of these claims. Accordingly, withdrawal of the rejection under 35 U.S.C. 112 second paragraph is respectfully requested.

The Office Action rejects claim 11 under 35 U.S.C. 112, second paragraph because the feature, “plurality of locations is three locations” is not clearly presented in the specification. Claim 11 depends directly from claim 4, which recites in part “a plurality of locations including said third and fourth locations and is arranged to receive a pair of signals . . .”. Applicants submit that this feature is clearly explained in the first

three paragraphs of page 4 of the present specification. Thus, this feature is clearly supported and is other wise in compliance with 35 U.S.C. 112. Further, the issue of whether or not a claim is supported or described n the specification is not an appropriate inquiry under 35 U.S.C. 112, second paragraph. Accordingly, withdrawal of the rejection under 35 U.S.C. 112, is respectfully requested.

The Office Action rejected claim 34 under 35 U.S.C. 101 as being directed to non-statutory subject matter. Applicants submit that claim 34 is amended to be more clearly directed to an article of manufacture (“a computer readable medium”), which is statutory subject matter under 35 U.S.C. 101. Accordingly, withdrawal of the rejection under 35 U.S.C. 101 is respectfully requested.

The Office Action objected to claims 2, 4-13, 16-19 and 21-25 because of informalities. Applicants submit that these claims are amended to replace the word “A” with “The”. Accordingly, withdrawal of the objection to these claims is respectfully requested.

The Office Action rejected claims 2, 4-13,15-19, 21-27, 30, 31, 33 and 34 under 35 U.S.C. 103(a) as being obvious over US Patent No. 4,799,062 to Sanderford Jr. et al. (Sanderford), in view of US Patent Publication No. 2003/0125046 to Riley et al. (Riley). The Office Action took the position that Sanderford disclosed all of the features of these claims except that the station is mobile. The Office Action asserted that Riley disclosed this feature. Applicants submit that the cited references, taken individually or in

combination, fail to disclose or suggest all of the features recited in any of the pending claims.

Claim 15, from which claims 2, 4-13, 16-19 and 21-25 depend, is directed to a telecommunications system. A first base station unit is situated at a first, known location. A second base station unit is situated at a second, unknown location. A mobile station is configured to receive signals at a third, known location from the first and second base stations; and, once the mobile station has moved, to receive signals at a fourth known location from the first and second base stations, wherein the said signals received at the third and fourth locations are usable to ascertain the location of the second base station.

Claim 26 is directed to a telecommunications system. A first base station is situated at a first, known location. A second base station situated at a second, unknown location. A mobile station is configured to receive signals at a third, known location from the first and second transmitter unit. Once the mobile station has moved, signals are received at a fourth known location from the first and second base stations. The signals received at the third and fourth locations are usable to ascertain the location of the second base station. A calculation unit is configured to use the signals received at the third and fourth locations or any values derived from the signals to ascertain the location of the second base station. The calculation unit is configured to verify the accuracy of the ascertained location of the second base station by comparing it with location information of the second base station obtained from other sources.

Claim 27 is directed to a telecommunications system. A first base station is situated at a first, known location. A second base station is situated at a second, unknown location. A mobile station is configured to receive signals at a third, known location from the first and second base station. Once the mobile station has moved, signals are received at a fourth known location from the first and second base stations. The signals received at the third and fourth locations are usable to ascertain the location of the second base station. The ascertained location of the second base station is usable to check the accuracy of identification information of the second base station obtained from other sources and thus identify the second base station.

Claim 30 is directed to a method of determining the location of a base station in a telecommunications system. Signals are received at a mobile station situated at a first, known location from a first base station situated at a second, known location. Signals are received from a second base station situated at a third, unknown location. The time difference is determined between the arrival times of a signal from the first base station and a signal from the second base station. Signals are received at the mobile station situated at a fourth, known location from the first base station and from the second base station and determining the time difference between the arrival times of a signal from the first base station and a signal from the second base station. The determined time differences are used to ascertain the location of the second base station.

Claim 31 is directed to a method of determining the location of a base station in a telecommunications system. Signals are received at a mobile station situated at a first,

known location, from a first base station situated at a second, known location. Signals are also received from a second base station situated at a third, fixed, unknown location. The time difference is determined between the arrival times of a signal from the first base station and a signal from the second base station. Signals are received at the mobile station situated at a fourth, known location from the first base station and from the second base station. The time difference is determined between the arrival times of a signal from the first base station and a signal from the second base station. The time differences are used to ascertain the location of the second base station.

Claim 33 is directed to a calculation unit for use in a telecommunications system. A first base station is situated at a first, known location. A second base station is situated at a second, unknown location. A mobile station is arranged to receive signals at a third known location from the first and second base stations. The mobile station is further configured to determine the time difference between the arrival times of a signal from the first base station and a signal from the second base station. Once the mobile station has moved, it is arranged to receive signals at a fourth, known location from the first and second base stations, and further arranged to determine the time difference between the arrival time of a signal from the first base station and a signal from the second base station. The calculation unit is arranged to use the time differences between the arrival times of signals from the first and second base stations as determined at the third and fourth locations to ascertain the location of the second base station.

Claim 34 is directed to a computer program for use in a telecommunications system. A first base station is situated at a first, known location. A second base station is situated at a second, unknown location. A mobile station is arranged to receive signals at a third, known location from the first and second base stations; and further arranged to determine the time difference between the arrival times of a signal from the first base station and a signal from the second base station. The mobile station is arranged to receive signals at a fourth, known location from the first and second base stations. The mobile station is further arranged to determine the time difference between the arrival time of a signal from the first base station and a signal from the second base station. The computer program is configured to use the time differences between the arrival times of signals from the first and second base stations as determined at the third and fourth locations to ascertain the location of the second base station.

Embodiments of the present invention are directed to finding the position of a base station within a telecommunications system. For example, according to one embodiment, one base station is at a first, known location and another base station is at a second, unknown location. A mobile station starts at a third location and receives signals from both base stations, then moves to a fourth location and receives signals from both base stations again. These received signals can then be used to determine the location of the unknown base station. Applicants submit that the cited references fail to disclose or suggest all of the features recited in any of the pending claims.

Sanderford describes a system for finding the location of an unknown position transmitter 106, by determining the times of arrival of signals received from the unknown position transmitter 106 at a plurality of base repeater stations 110. The base repeater stations also receive a reference signal from a mobile reference transceiver 108, and use the reference signal to determine a relative position of the unknown position transmitter relative to the mobile reference transceiver 108 (column 6, lines 36-53).

Riley is directed to use of mobile stations to determine base station location parameters. The positions of the mobile stations are determined, and then the position of the base station is determined from the positions of the mobile stations and from signals transmitted between the base station and the mobile stations. See paragraphs [0011] – [0012].

Applicants respectfully submit that the cited references fail to disclose or suggest at least the features of “a second base station unit situated at a second, unknown location, and a mobile station configured to receive signals at a third, known location from the first and second base stations; and, once the mobile station has moved, to receive signals at a fourth known location from the first and second base stations, wherein the said signals received at the third and fourth locations are usable to ascertain the location of the second base station”, as recited in claim 15 and similarly recited in claims 26, 27, 30, 31, 33 and 34. The Office Action relied on Sandersford to disclose this feature. The Office Action has interpreted the “unknown position transmitter” 106 and “mobile reference transceiver” 108 of Sanderford, as the base stations of the presently claimed application.

However, the unknown position transmitter 106 and mobile reference transceiver 108 described in Sandersford are not “base stations”. The term “base station” has a well established meaning in the art, i.e. a station for providing coverage to mobile stations over a cell of a cellular network. In contrast, the mobile reference transceiver 108 is only a tracking device for use in a vehicle (e.g. column 11, lines 41-43).

Further Sanderford does the unknown position transceiver 106 is merely, a mobile phone or the like because its position is used to find a patient in case of a medical emergency (e.g. column 9, line 9). There is certainly no suggestion in Sanderford that either of the transceivers 108 or 106 are base stations. Applicants further submit that Riley fails to cure these deficiencies. Therefore, the cited references fail to disclose or suggest all of the features recited in any of the pending claims.

Further, the Office Action’s interpretation of Sanderford is inconsistent. The Office Action has acknowledged that Sanderford does not disclose that the repeater station 110 is mobile. However, the Examiner has also asserted that Sanderford does disclose a given repeater station 110 receiving signals at both a third and a fourth location. This is inconsistent because a repeater station 110 cannot take measurements at two different locations if it is not mobile. Therefore, Sanderford and accordingly the cited references fails to disclose or suggest the feature of “once the mobile station has moved, to receive signals at a fourth known location from the first and second base stations”, as recited in claims 15, 26, 27, 30, 31, 33 and 34.

Applicants further submit that one skilled in the art would not be motivated to modify the teachings of Sandersford with the teachings of Riley, because the asserted combination would render Sandersford and/or Riley unsuitable for their intended purpose.

Riley discloses a system whereby the positions of base stations are measured using mobile stations. From this, the Office Action alleges that it would be obvious to replace a repeater station 110 of Sanderford with a mobile station.

However, as described at column 9, lines 9 and 20-23; and column 10, lines 40-42, and discussed above, the system of Sanderford is for finding a person's location in a medical emergency. Column 10, lines 40-42 specifically states that the system must act as quickly as possible. In such situations, it would not be acceptable to wait for one of the receiving stations 110 to move to another location before the patient's position could be determined. Therefore, the person skilled in the art would not try to replace one of the repeater stations 110 with a mobile station, because Sanderford teaches against such a modification. Accordingly, one skilled in the art would not be motivated to modify Sanderford with Riley as alleged in the Office Action.

The Office Action further asserted that it would be obvious to make the modification "as Riley suggests, to automatically correct erroneous base station location information with a degree of certainty and automatically maintain and improve the base station information database". However, Applicants respectfully assert that this would provide any motivation. Firstly, the mentioned automation is not related to whether or not

the measuring station is mobile. Secondly, Riley already discloses a complete and self-contained method for correcting and maintaining base station positions, so there would be no reason why a skilled person would try to modify Sanderford for that purpose. Thirdly, as mentioned above, the transceivers 106 and 108 in Sanderford are not base stations.

Thus, Applicants submit that the Office Action did not establish *prima facie* obviousness in rejecting claims 15, 26, 27, 30, 31, 33 and 34 because, 1) the cited references fail to disclose or suggest all of the features recited in these claims, and 2) one skilled in the art would not be motivated to modify the teachings of Sanderford with Riley as alleged in the Office Action.

Applicants submit that because claims 2, 4-13, 16-19 and 21-25 depend from claim 15, these claims are allowable at least for the same reasons as claim 15, as well as for the additional features recited in these dependent claims.

Based at least on the above, Applicants submit that the cited references fail to disclose or suggest all of the features recited in claims 2, 4-13, 15-19, 21-27, 30, 31, 33 and 34. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.


Applicants submit that each of claims 2, 4-13, 15-19, 21-27, 30, 31, 33 and 34 are in condition for allowance. Accordingly, it is respectfully requested that each of claims 2, 4-13, 15-19, 21-27, 30, 31, 33 and 34 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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